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SLUMS cognitive performance demonstrated meaningful concordance with plasma AD biomarkers (p-tau217, p-tau181, Aβ42/40) in a real-world UAE cohort of 311 patients. Multimarker profiles demonstrated concordant biological stratification across SLUMS severity categories, while p-tau217 and p-tau181 showed the strongest individual associations, supporting SLUMS as a biologically informed cognitive screening construct. Preliminary retrospective exploratory analysis — requires prospective validation.

INTRODUCTION	METHODS	RESULTS	INTEGRATED FINDINGS	CONCLUSIONS	REFERENCES																
BACKGROUND Blood-based biomarkers are transforming AD detection, yet scalable cognitive screening tools reflecting biological pathology remain underutilised in real-world clinical practice. Biologically anchored cognitive screening approaches remain underexplored in the UAE, where linguistic diversity and variable education complicate standardised screening. OBJECTIVE To evaluate SLUMS alignment with plasma AD biomarkers in a real-world UAE memory clinic cohort and explore SLUMS as a biologically informed cognitive screening construct. EVIDENCE GAP - No SLUMS biomarker evaluation in Gulf/MENA - UAE linguistic & education heterogeneity unaddressed - p-tau217 not benchmarked vs SLUMS in Arab cohorts - Global AD equity requires underrepresented data PRELIMINARY RETROSPECTIVE EXPLORATORY ANALYSIS Requires prospective validation.	DESIGN IRB-approved retrospective sub-analysis Cleveland Clinic Abu Dhabi — tertiary memory clinic COHORT N = 311 consecutive patients Mean age: 67.8 yrs (range 34–97) Female: 48.7% · UAE Nationals: 72% >20 nationalities · Education: 5 levels Classifiable SLUMS strata: n = 297 Complete biomarker data: n = 249 BIOMARKERS & ASSAY PLATFORMS p-tau217 — Fujirebio Lumipulse CLEIA p-tau181 — Roche Diagnostics ECLIA Aβ42/40 — Sysmex CLEIA Covariates: age · sex · education SLUMS STRATA Dementia-Range (≤20) n=149 (50.2%) MCI-Range (21–26) n=67 (22.6%) Preserved (≥27) n=81 (27.3%) All analyses preliminary — subject to ongoing QC.	BIOMARKER TRENDS Median values · classifiable strata n=297 p-tau217: 0.095 → 0.110 → 0.570 pg/mL p-tau181: 0.585 → 0.730 → 1.630 pg/mL Aβ42/40: 0.118 → 0.110 → 0.101 Preliminary — subject to ongoing QC. p-tau217 (pg/mL) ★ Strongest directional signal Median (pg/mL) 0.095 0.110 0.570 Preserved (≥27) MCI-Range (21–26) Dementia-Range (≤20) p-tau181 (pg/mL) Consistent tau gradient Median (pg/mL) 0.585 0.730 1.630 Preserved (≥27) MCI-Range (21–26) Dementia-Range (≤20) Aβ42/40 Ratio Progressive inverse trend Median Ratio 0.118 0.110 0.101 Preserved (≥27) MCI-Range (21–26) Dementia-Range (≤20)	BIOLOGICAL FINDINGS SPEARMAN CORRELATIONS (pairwise available) Exploratory — subject to ongoing QC p-tau217 vs SLUMS ρ = −0.673 p<0.001 (n=282) p-tau181 vs SLUMS ρ = −0.701 p<0.001 (n=255) Aβ42/40 vs SLUMS ρ = +0.436 p<0.001 (n=257) n=249 with complete data across all 3 markers. Combined Biomarker Burden Across SLUMS Severity Strata Proportion of Patients (%) <table><thead><tr><th>Strata</th><th>Low Burden (D-1)</th><th>Mid Burden (D-2)</th><th>High Burden (D-3)</th></tr></thead><tbody><tr><td>Cognitively Preserved (≥27)</td><td>67%</td><td>26%</td><td>7%</td></tr><tr><td>MCI-Range (21–26)</td><td>43%</td><td>38%</td><td>20%</td></tr><tr><td>Dementia-Range (≤20)</td><td>9%</td><td>37%</td><td>54%</td></tr></tbody></table> z-score composite: p-tau217 + p-tau181 − Aβ42/40 Exploratory.	Strata	Low Burden (D-1)	Mid Burden (D-2)	High Burden (D-3)	Cognitively Preserved (≥27)	67%	26%	7%	MCI-Range (21–26)	43%	38%	20%	Dementia-Range (≤20)	9%	37%	54%	CONCLUSIONS - SLUMS cognitive performance demonstrated meaningful concordance with plasma AD biomarkers across a diverse, real-world UAE cohort of 311 patients. - p-tau217 and p-tau181 showed the strongest associations with cognitive performance. - Findings support prospective validation of biomarker-informed cognitive screening across diverse populations. FUTURE DIRECTIONS - Prospective longitudinal validation - Multivariable analyses (APOE, age, sex) - MENA multiethnic expansion TRANSLATIONAL FRAMEWORK From Cognitive Screening to Biological Stratification Translational Framework From Cognitive Screening to Biological Stratification SLUMS Cognitive Screening (0 – 30) Plasma Biomarkers p-tau217 p-tau181 Aβ42/40 (Blood-based) Biologically Informed Cognitive Assessment Earlier Detection • Equitable Care • Precision Medicine Actionable Insights for Personalized Care Preliminary exploratory framework — requires prospective validation. All findings require prospective validation before clinical application.	REFERENCES - Tariq SH et al. Am J Geriatr Psychiatry. 2006;14(11):900-910. - Ashton NJ et al. Plasma p-tau217 and p-tau231. Nat Med. 2024;30(9):2535-2545. - Janelidze S et al. Plasma p-tau217 in AD. Lancet Neurol. 2021;20(11):901-911. - Hansson O et al. Blood biomarkers for AD. Nat Aging. 2023;3(5):506-519. - Jack CR Jr et al. NIA-AA ATN Framework. Alzheimers Dement. 2018;14(4):535-562. - Prince M et al. World Alzheimer Report 2015. ADI. London 2015.
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Nationality Composition

UAE Nationals

Non-UAE

72%

28%

311

67.8 yr

Total Patients

Mean Age

48.7%

>20

Female

Nationalities

5

n=249

Educ. Level

Biomarker Data

Cohort at a Glance

Combined Biomarker Burden Across SLUMS Severity Strata

Proportion of Patients (%)

Low Burden (D-1) Mid Burden (D-2) High Burden (D-3)

7% 26% 38% 20% 43% 54% 9% 37%

Cognitively Preserved (≥27) MCI-Range (21–26) Dementia-Range (≤20)

z-score composite: p-tau217 + p-tau181 – Aβ42/40 | Exploratory.